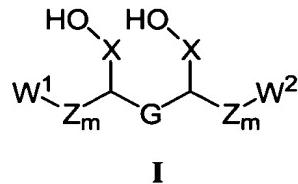


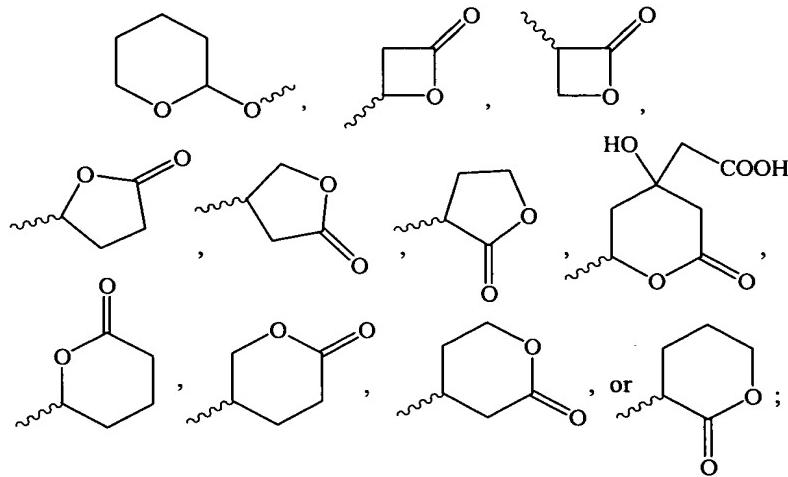
WHAT IS CLAIMED:

1. A compound of the formula I:

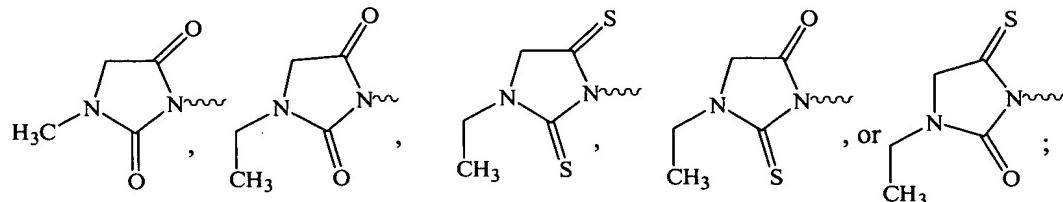
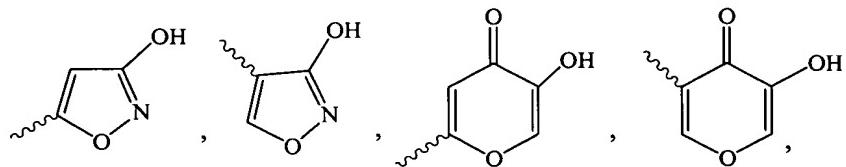
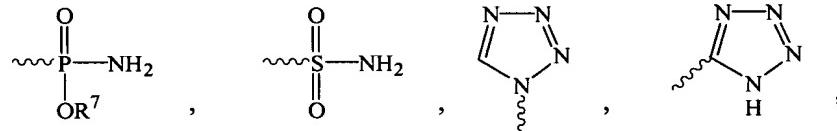
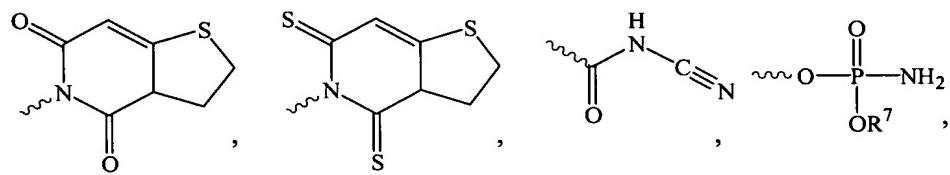
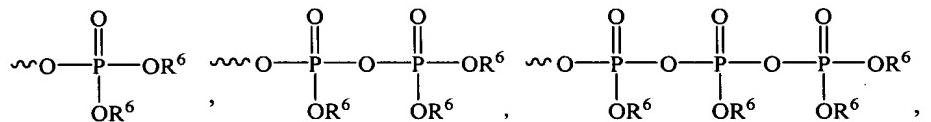


or a pharmaceutically acceptable salt, hydrate, solvate, or a mixture thereof, wherein

- 5 (a) each occurrence of Z is independently CH_2 , $\text{CH}=\text{CH}$, or phenyl, where each occurrence of m is independently an integer ranging from 1 to 9, but when Z is phenyl then m is 1;
- (b) G is $(\text{CH}_2)_x$, where x is 1-7, $\text{CH}_2\text{CH}=\text{CHCH}_2$, $\text{CH}=\text{CH}$, $\text{CH}_2\text{-phenyl-CH}_2$, or phenyl;
- (c) 10 W¹ and W² are independently L, V, $\text{C}(\text{R}^1)(\text{R}^2)-(\text{CH}_2)_c-\text{C}(\text{R}^3)(\text{R}^4)-(\text{CH}_2)_n-\text{Y}$, or $\text{C}(\text{R}^1)(\text{R}^2)-(\text{CH}_2)_c-\text{V}$ where c is 1 or 2 and n is an integer ranging from 0 to 7;
- (d) 15 each occurrence of R¹ or R² is independently (C₁-C₆)alkyl, (C₂-C₆)alkenyl, (C₂-C₆)alkynyl, phenyl, or benzyl or when one or both of W¹ and W² is $\text{C}(\text{R}^1)(\text{R}^2)-(\text{CH}_2)_c-\text{C}(\text{R}^3)(\text{R}^4)-(\text{CH}_2)_n-\text{Y}$, then R¹ and R² can both be H to form a methylene group; or R¹ and R² and the carbon to which they are both attached are taken together to form a (C₃-C₇)cycloakyl group;
- (e) 20 R³ is H, (C₁-C₆)alkyl, (C₂-C₆)alkenyl, (C₂-C₆)alkynyl, (C₁-C₆)alkoxy, phenyl, benzyl, Cl, Br, CN, NO₂, or CF₃;
- (f) R⁴ is OH, (C₁-C₆)alkyl, (C₂-C₆)alkenyl, (C₂-C₆)alkynyl, (C₁-C₆)alkoxy, phenyl, benzyl, Cl, Br, CN, NO₂, or CF₃;
- (g) 25 L is $\text{C}(\text{R}^1)(\text{R}^2)-(\text{CH}_2)_n-\text{Y}$, wherein n is an integer from 0 to 5;
- (h) V is:



(i) each occurrence of Y is independently (C₁-C₆)alkyl, OH, COOH, COOR⁵, SO₃H,



5

wherein:

(i) R⁵ is (C₁-C₆)alkyl, (C₂-C₆)alkenyl, (C₂-C₆)alkynyl, phenyl, or benzyl and is unsubstituted or substituted with one or more halo, OH, (C₁-C₆)alkoxy, or phenyl groups,

5

(ii) each occurrence of R⁶ is independently H, (C₁-C₆)alkyl, (C₂-C₆)alkenyl, or (C₂-C₆)alkynyl and is unsubstituted or substituted with one or two halo, OH, (C₁-C₆) alkoxy, or phenyl groups;

(iii) each occurrence of R⁷ is independently H, (C₁-C₆)alkyl, (C₂-C₆)alkenyl, or (C₂-C₆)alkynyl; and

(j) X is (CH₂)_z or Ph, wherein z is an integer from 0 to 4.

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2. The compound of claim 1, wherein G is (CH₂)₂.

3. The compound of claim 1, wherein each occurrence of Z_m is independently (CH₂) and m is 1-4.

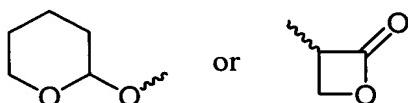
4. The compound of claim 1, wherein each occurrence of W¹ and W² is independently L.

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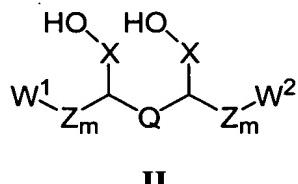
5. The compound of claim 2, wherein L is C(CH₃)₂-(CH₂)-OH

6. The compound of claim 1, wherein each occurrence of W¹ and W² is independently V.

7. The compound of claim 6, wherein V is

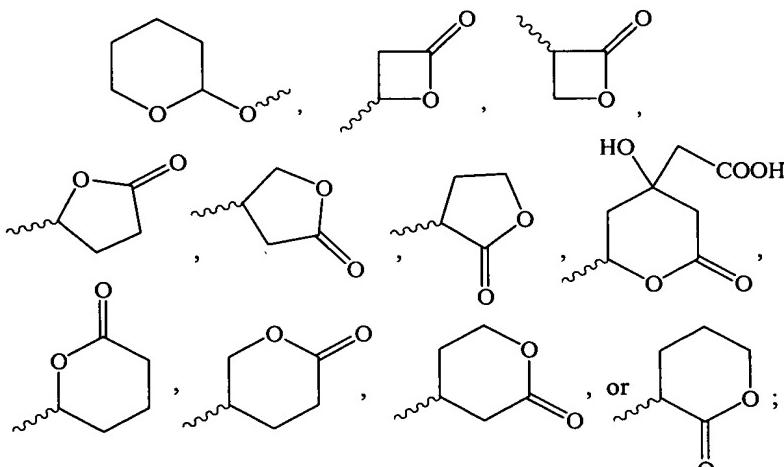


8. A compound of the formula II:



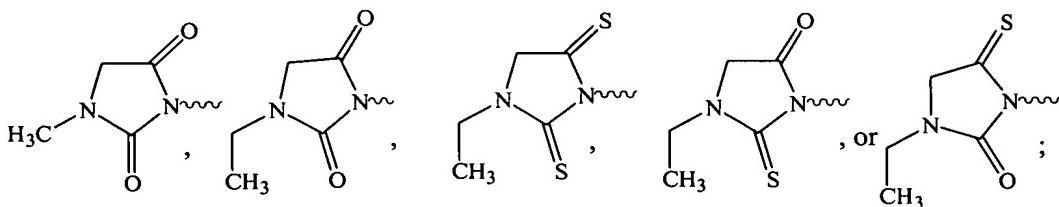
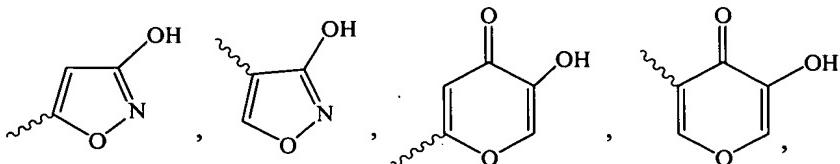
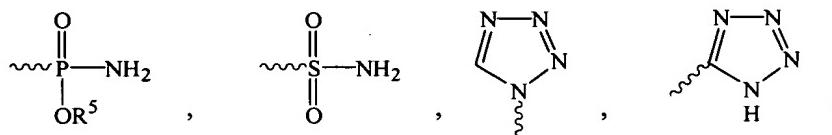
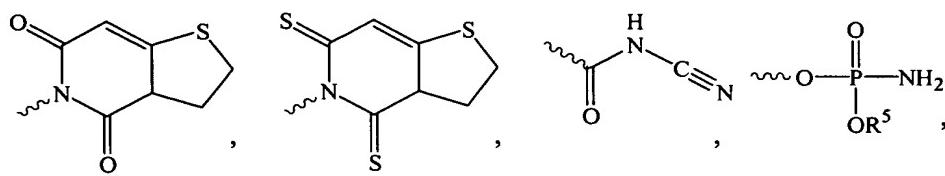
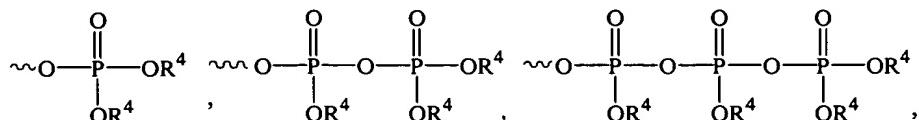
5 or a pharmaceutically acceptable salt, hydrate, solvate, or a mixture thereof, wherein:

- (a) each occurrence of Z is independently CH_2 or $\text{CH}=\text{CH}$, wherein each occurrence of m is independently an integer ranging from 1 to 9;
- (b) Q is $(\text{CH}_2)_x$, $\text{CH}_2\text{CH}=\text{CHCH}_2$, or $\text{CH}=\text{CH}$, where x is 2, 3, or 4;
- (c) W^1 and W^2 are independently L, V, or $\text{C}(\text{R}^1)(\text{R}^2)-(\text{CH}_2)_c-\text{V}$, where c is 1 or 2;
- 10 (d) each occurrence of R^1 and R^2 is independently $(\text{C}_1\text{-}\text{C}_6)$ alkyl, $(\text{C}_2\text{-}\text{C}_6)$ alkenyl, $(\text{C}_2\text{-}\text{C}_6)$ alkynyl, phenyl, benzyl, or R^1 and R^2 and the carbon to which they are both attached are taken together to form a $(\text{C}_3\text{-}\text{C}_7)$ cycloakyl group;
- (e) L is $\text{C}(\text{R}^1)(\text{R}^2)-(\text{CH}_2)_n-\text{Y}$, where n is an integer ranging from 0 to 5;
- (f) V is:



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- (g) each occurrence of Y is independently $(\text{C}_1\text{-}\text{C}_6)$ alkyl, OH, COOH, COOR^3 , SO_3H ,



wherein:

5

(i) R³ is (C₁-C₆)alkyl, (C₂-C₆)alkenyl, (C₂-C₆)alkynyl, phenyl, or benzyl and is unsubstituted or substituted with one or more halo, OH, (C₁-C₆)alkoxy, or phenyl groups,

10

(ii) each occurrence of R⁴ is independently H, (C₁-C₆)alkyl, (C₂-C₆)alkenyl, or (C₂-C₆)alkynyl and is unsubstituted or substituted with one or two halo, OH, (C₁-C₆)alkoxy, or phenyl groups; and

(iii) each occurrence of R⁵ is independently H, (C₁-C₆)alkyl, (C₂-C₆)alkenyl, or (C₂-C₆)alkynyl.

9. The compound of claim 8, wherein each occurrence of W¹ and W² is independently L.

15

10. The compound of claim 9, wherein L is C(CH₃)₂-(CH₂)_n-Y.

11. The compound of claim 10, wherein each occurrence of Y is independently OH, COOR⁷, or COOH.

12. The compound of claim 8, wherein Q is CH=CH..

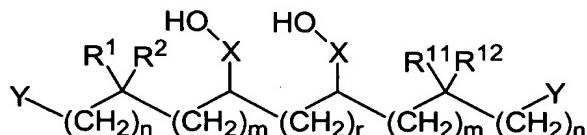
13. The compound of claim 8, wherein Z_m is CH₂ and m is 1-3.

5 14. The compound of claim 8, wherein each of W¹ and W² is independently C(R¹)(R²)-(CH₂)_x-V.

15. The compound of claim 14, wherein R¹ and R² are each independently (C₁-C₆) alkyl.

16. The compound of claim 15, wherein R¹ and R² are each methyl.

10 17. A compound of the formula III



or a pharmaceutically acceptable salt, hydrate, solvate, or a mixture thereof, wherein:

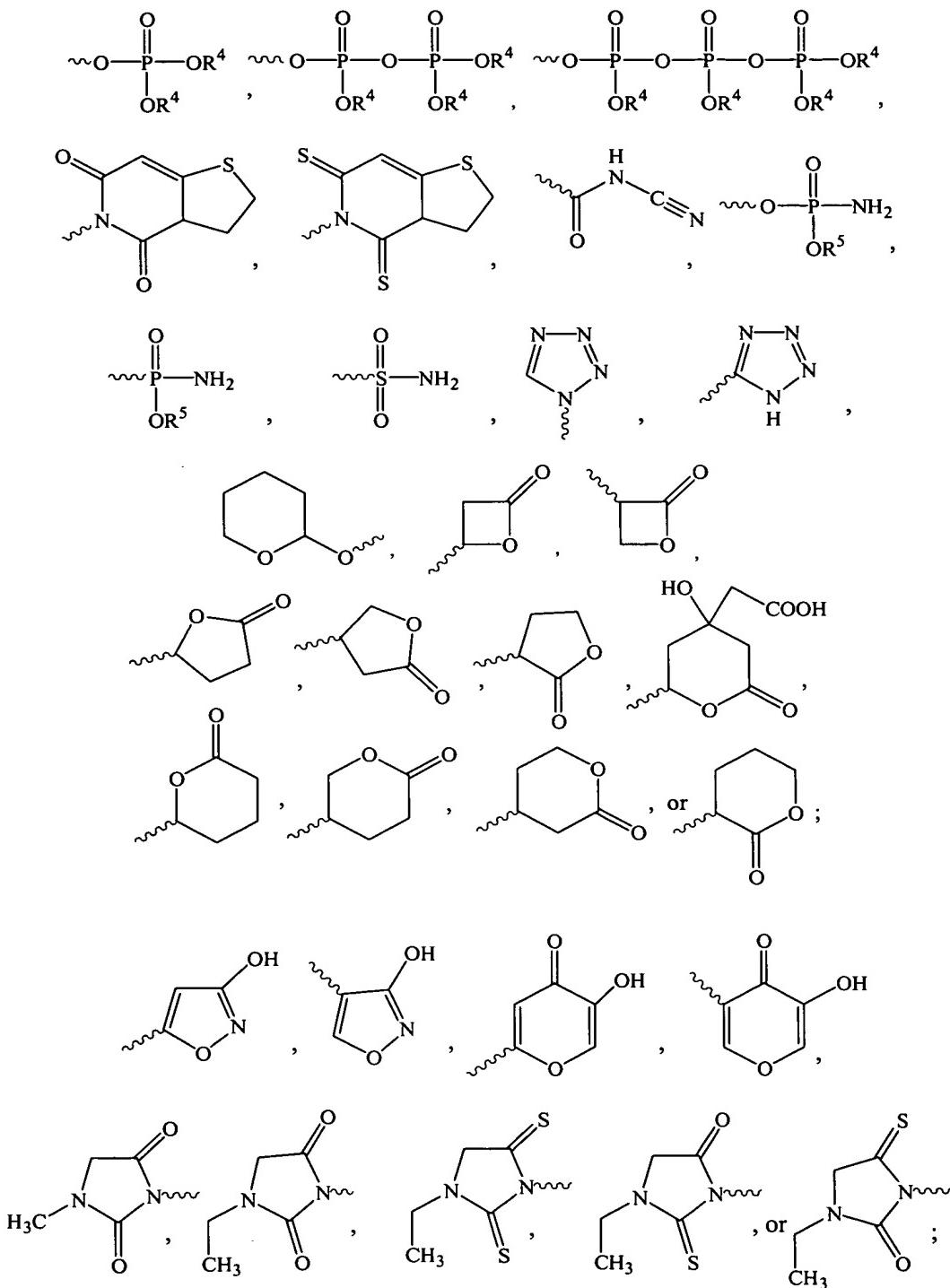
(a) each occurrence of m is independently an integer ranging from 1 to 9;

15 (b) r is 2, 3, or 4;

(c) each occurrence of n is independently an integer ranging from 0 to 7;

(d) each occurrence of R¹, R², R¹¹, and R¹² is independently (C₁-C₆)alkyl, (C₂-C₆)alkenyl, (C₂-C₆)alkynyl, phenyl, benzyl, or R¹ and R² and the carbon to which they are both attached are taken together to form a (C₃-C₇)cycloakyl group, or R¹¹ and R¹² and the carbon to which they are both attached are taken together to form a (C₃-C₇)cycloakyl group; and

(e) each occurrence of Y is independently (C₁-C₆)alkyl, OH, COOH, COOR³, SO₃H,



5

wherein:

(i) R³ is (C₁-C₆)alkyl, (C₂-C₆)alkenyl, (C₂-C₆)alkynyl, phenyl, or benzyl and is unsubstituted or substituted with one or more halo, OH, (C₁-C₆)alkoxy, or phenyl groups,

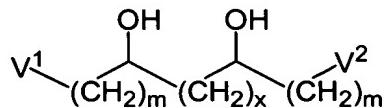
(ii) each occurrence of R⁴ is independently H, (C₁-C₆)alkyl, (C₂-C₆)alkenyl, or (C₂-C₆)alkynyl and is unsubstituted or substituted with one or two halo, OH, C₁-C₆ alkoxy, or phenyl groups;

5 (iii) each occurrence of R⁵ is independently H, (C₁-C₆)alkyl, (C₂-C₆)alkenyl, or (C₂-C₆)alkynyl; and

(f) X is (CH₂)_z or Ph, wherein z is an integer from 0 to 4.

18. The compound of claim 17, wherein each occurrence of Y¹ and Y² is independently OH, COOR³, or COOH.

19. A compound of the formula IV



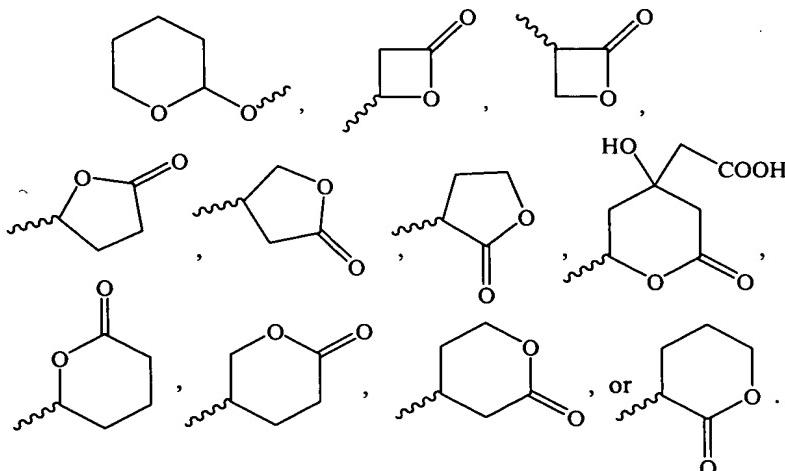
IV

or a pharmaceutically acceptable salt, hydrate, solvate, or a mixture thereof, wherein:

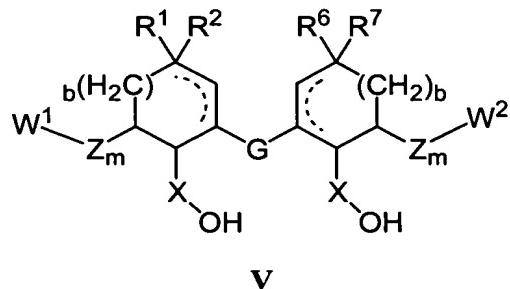
(a) each occurrence of m is an independent integer ranging from 1 to 9;

15 (b) x is 2, 3, or 4;

(c) each of V¹ and V² is independently:

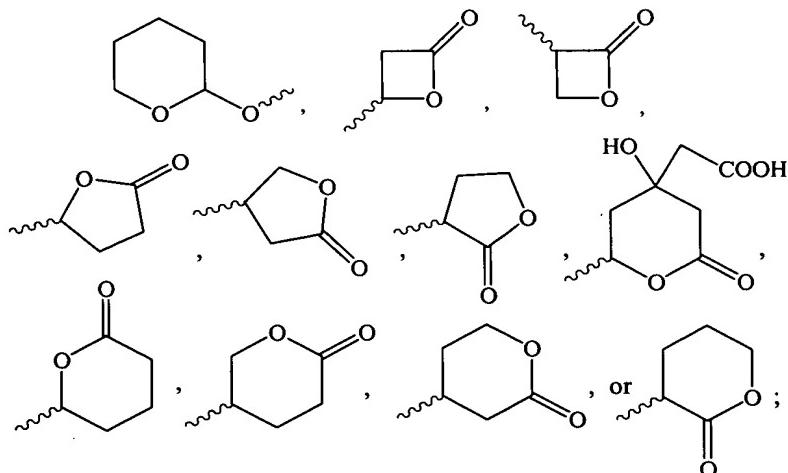


20. A compound of the formula V:



or a pharmaceutically acceptable salt, hydrate, solvate, or a mixture thereof, wherein:

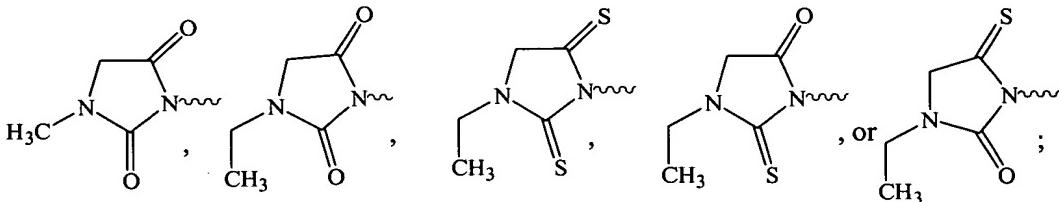
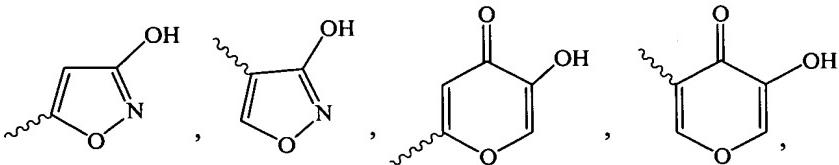
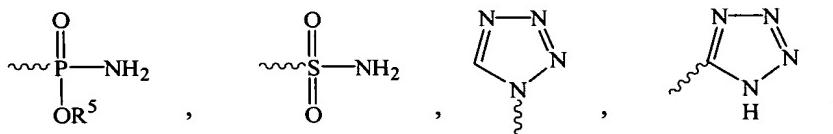
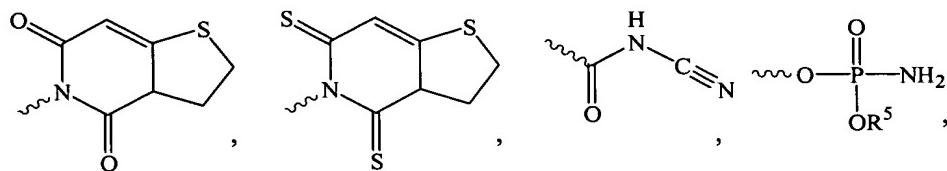
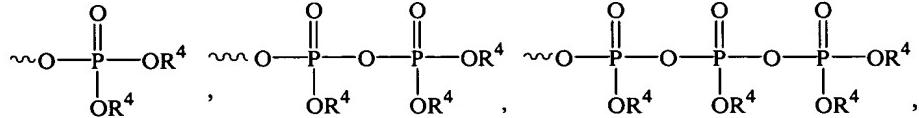
- 5 (a) each occurrence of Z is independently CH_2 , $\text{CH}=\text{CH}$, or phenyl, where each occurrence of m is independently an integer ranging from 1 to 5, but when Z is phenyl then its associated m is 1;
- (b) G is $(\text{CH}_2)_x$, $\text{CH}_2\text{CH}=\text{CHCH}_2$, $\text{CH}=\text{CH}$, $\text{CH}_2\text{-phenyl-CH}_2$, or phenyl, where x is an integer ranging from 1 to 7;
- 10 (c) W^1 and W^2 are independently $\text{C}(\text{R}^8)(\text{R}^9)-(\text{CH}_2)_n\text{-Y}$, where n is an integer ranging from 0 to 7;



- 15 (d) each occurrence of R^8 and R^9 is independently H, $(\text{C}_1\text{-}\text{C}_6)$ alkyl, $(\text{C}_2\text{-}\text{C}_6)$ alkenyl, $(\text{C}_2\text{-}\text{C}_6)$ alkynyl, phenyl, or benzyl or R^8 and R^9 can be taken together to form a carbonyl group;
- (e) each occurrence of R^1 and R^2 is independently H, $(\text{C}_1\text{-}\text{C}_6)$ alkyl, $(\text{C}_2\text{-}\text{C}_6)$ alkenyl, $(\text{C}_2\text{-}\text{C}_6)$ alkynyl, phenyl, or benzyl or R^1 and R^2 can be taken together to form a carbonyl group or R^1 and R^2 and the carbon to which they are both attached are taken together to form a $(\text{C}_3\text{-}\text{C}_7)$ cycloakyl group;

- (f) each occurrence of R⁶ and R⁷ is independently H, (C₁-C₆)alkyl, or R⁶ and R⁷ can be taken together to form a carbonyl group or R⁶ and R⁷ and the carbon to which they are both attached are taken together to form a (C₃-C₇)cycloakyl group;
- (g) Y is independently (C₁-C₆)alkyl, OH, COOH, COOR³, SO₃H,

5



wherein:

10

(i) R³ is (C₁-C₆)alkyl, (C₂-C₆)alkenyl, (C₂-C₆)alkynyl, phenyl, or benzyl and is unsubstituted or substituted with one or more halo, OH, (C₁-C₆)alkoxy, or phenyl groups,

(ii) each occurrence of R⁴ is independently H, (C₁-C₆)alkyl, (C₂-C₆)alkenyl, or (C₂-C₆)alkynyl and is unsubstituted or substituted with one or two halo, OH, C₁-C₆ alkoxy, or phenyl groups;

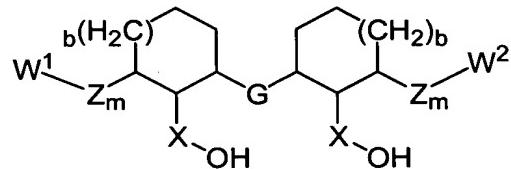
15

(iii) each occurrence of R⁵ is independently H, (C₁-C₆)alkyl, (C₂-C₆)alkenyl, or (C₂-C₆)alkynyl;

- (h) each occurrence of b is independently 0 or 1 or optionally the presence of one or more additional carbon-carbon bonds that when present complete one or more carbon-carbon double bonds; and
- (i) X is $(CH_2)_z$ or Ph, wherein z is an integer from 0 to 4.

5 21. The compound of claim 20, wherein each occurrence of W^1 and W^2 is an independent $C(R^1)(R^2)-(CH_2)_n-Y$ group and each occurrence of Y is independently OH, $COOR^3$, or COOH.

22. A compound of the formula VI:



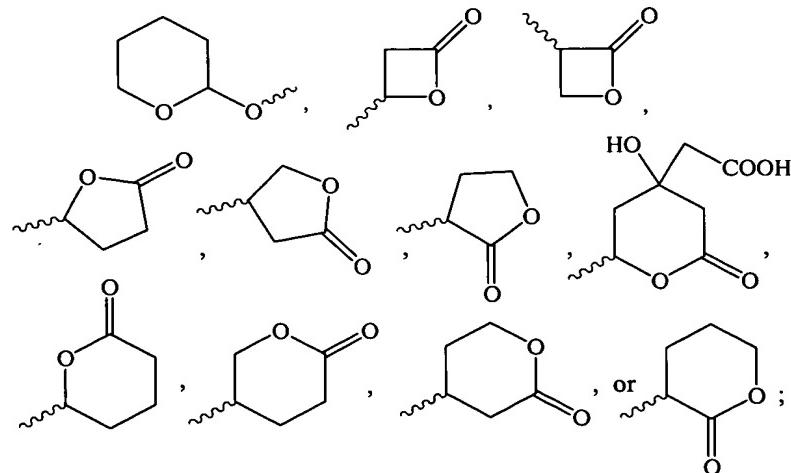
VI

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or a pharmaceutically acceptable salt, hydrate, solvate, or a mixture thereof, wherein

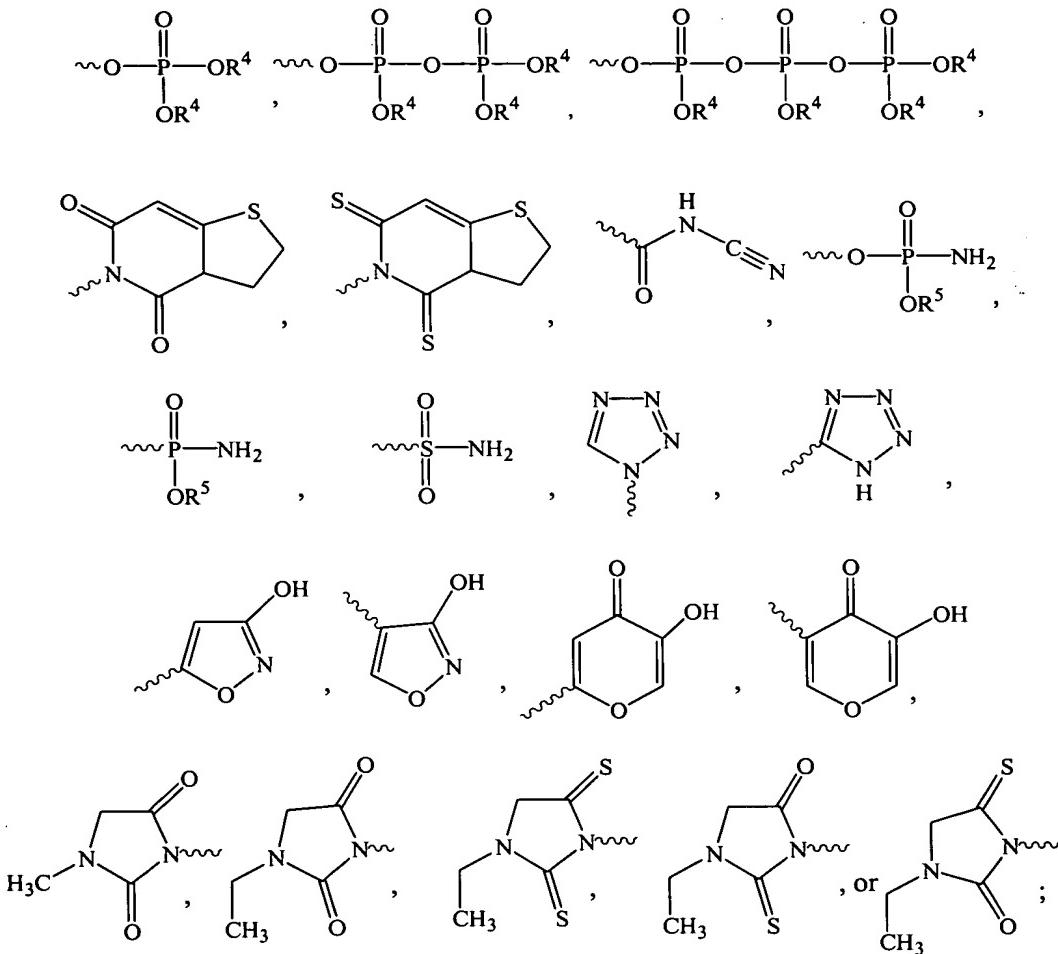
- (a) each occurrence of m is independently an integer ranging from 1 to 5;
- (b) X is $(CH_2)_z$ or Ph, wherein z is an integer from 0 to 4;
- (c) W^1 and W^2 are independently $C(R^1)(R^2)-(CH_2)_n-Y$, where n is an integer ranging from 0 to 7;

15



- (d) each occurrence of R¹ or R² is independently (C₁-C₆)alkyl, (C₂-C₆)alkenyl, (C₂-C₆)alkynyl, or R¹ and R² and the carbon to which they are both attached are taken together to form a (C₃-C₇)cycloakyl group;
- (e) Y is (C₁-C₆)alkyl, (CH₂)_nOH, (CH₂)_nCOOH, (CH₂)_nCOOR³, SO₃H,

5



wherein:

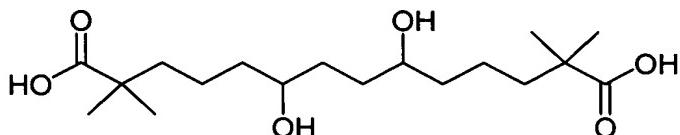
10

- (i) R³ is (C₁-C₆)alkyl, (C₂-C₆)alkenyl, (C₂-C₆)alkynyl, phenyl, or benzyl and is unsubstituted or substituted with one or more halo, OH, (C₁-C₆)alkoxy, or phenyl groups,
- (ii) each occurrence of R⁴ is independently H, (C₁-C₆)alkyl, (C₂-C₆)alkenyl, or (C₂-C₆)alkynyl and is unsubstituted or substituted with one or two halo, OH, C₁-C₆ alkoxy, or phenyl groups,
- 15 (iii) each occurrence of R⁵ is independently H, (C₁-C₆)alkyl, (C₂-C₆)alkenyl, or (C₂-C₆)alkynyl;

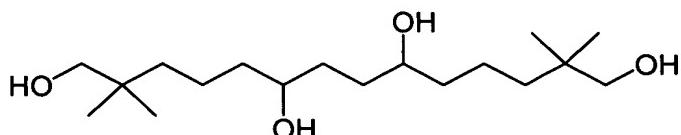
- (f) each occurrence of b is independently 0 or 1; and
(g) X is $(CH_2)_z$ or Ph, wherein z is an integer from 0 to 4.

23. The compound 22, wherein each occurrence of W^1 and W^2 is independently $C(R^1)(R^2)-(CH_2)_n-Y$, groups and each occurrence of Y is independently OH, COOR³, or
5 COOH.

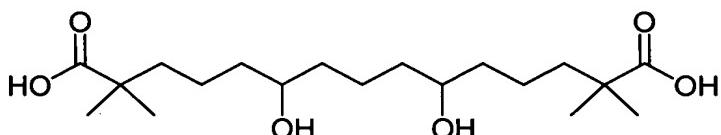
24. A compound of structure:



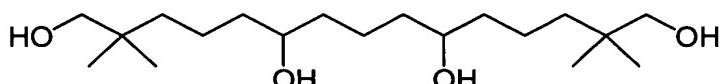
6,9-Dihydroxy-2,2,13,13-tetramethyl-tetradecanedioic acid;



2,2,13,13-Tetramethyl-tetradecane-1,6,9,14-tetraol;



6,10-Dihydroxy-2,2,14,14-tetramethyl-pentadecanedioic acid; and



2,2,14,14-Tetramethyl-pentadecane-1,6,10,15-tetraol.

25. A pharmaceutical composition comprising a compound of claim 1, 8, 17, 19,
20, 22, or 24 and a pharmaceutically acceptable vehicle, excipient, or diluent.

10 26. A pharmaceutical composition comprising a compound of claim 1, 8, 17, 19,
20, 22, or 24 and further comprising a second therapeutic agent.

27. A method for treating or preventing aging, Alzheimer's Disease, cancer, cardiovascular disease, diabetic nephropathy, diabetic retinopathy, a disorder of glucose metabolism, dyslipidemia, dyslipoproteinemia, hypertension, impotence, inflammation, insulin resistance, lipid elimination in bile, obesity, oxysterol elimination in bile,
5 pancreatitis, pancreatitis, Parkinson's disease, a peroxisome proliferator activated receptor-associated disorder, phospholipid elimination in bile, renal disease, septicemia, Syndrome X, thrombotic disorder, modulating C reactive protein, or enhancing bile production in a patient, comprising administering to a patient in need of such treatment or prevention a therapeutically or prophylactically effective amount of a compound of claim 1, 8, 17, 19, 20,
10 22, or 24.

28. A method for treating or preventing a cardiovascular disease in a patient, comprising administering to a patient in need of such treatment or prevention a therapeutically or prophylactically effective amount of a compound of claim 1, 8, 17, 19, 20, 22, or 24.

15 29. A method for treating or preventing a dyslipidemia in a patient, comprising administering to a patient in need of such treatment or prevention a therapeutically, effective amount of a compound of claim 1, 8, 17, 19, 20, 22, or 24.

20 30. A method for treating or preventing a dyslipoproteinemia in a patient, comprising administering to a patient in need of such treatment or prevention a therapeutically or prophylactically effective amount of a compound of claim 1, 8, 17, 19, 20, 22, or 24.

25 31. A method for treating or preventing a disorder of glucose metabolism in a patient, comprising administering to a patient in need of such treatment or prevention a therapeutically or prophylactically effective amount of a compound of claim 1, 8, 17, 19, 20, 22, or 24.

32. A method for treating or preventing Alzheimer's disease in a patient, comprising administering to a patient in need of such treatment or prevention a therapeutically or prophylactically effective amount of a compound of claim 1, 8, 17, 19, 20, 22, or 24.

33. A method for treating or preventing Syndrome X in a patient, comprising administering to a patient in need of such treatment or prevention a therapeutically or prophylactically effective amount of a compound of claim 1, 8, 17, 19, 20, 22, or 24.

34. A method for treating or preventing septicemia in a patient, comprising
5 administering to a patient in need of such treatment or prevention a therapeutically or prophylactically effective amount of a compound of claim 1, 8, 17, 19, 20, 22, or 24.

35. A method for treating or preventing a thrombotic disorder in a patient, comprising administering to a patient in need of such treatment or prevention a therapeutically or prophylactically effective amount of a compound of claim 1, 8, 17, 19,
10 20, 22, or 24.

36. A method for treating or preventing a peroxisome proliferator activated receptor associated disorder in a patient, comprising administering to a patient in need of such treatment or prevention a therapeutically or prophylactically effective amount of a compound of claim 1, 8, 17, 19, 20, 22, or 24.

15 37. A method for treating or preventing obesity in a patient, comprising administering to a patient in need of such treatment or prevention a therapeutically or effective amount of a compound of claim 1, 8, 17, 19, 20, 22, or 24.

20 38. A method for treating or preventing pancreatitis in a patient, comprising administering to a patient in need of such treatment or prevention a therapeutically or prophylactically effective amount of a compound of claim 1, 8, 17, 19, 20, 22, or 24.

39. A method for treating or preventing hypertension in a patient, comprising administering to a patient in need of such treatment or prevention a therapeutically or prophylactically effective amount of a compound of claim 1, 8, 17, 19, 20, 22, or 24.

25 40. A method for treating or preventing renal disease in a patient, comprising administering to a patient in need of such treatment or prevention a therapeutically or prophylactically effective amount of a compound of claim 1, 8, 17, 19, 20, 22, or 24.

41. A method for treating or preventing cancer in a patient, comprising administering to a patient in need of such treatment or prevention a therapeutically or prophylactically effective amount of a compound of claim 1, 8, 17, 19, 20, 22, or 24.

5 42. A method for treating or preventing inflammation in a patient, comprising administering to a patient in need of such treatment or prevention a therapeutically or prophylactically effective amount of a compound of claim 1, 8, 17, 19, 20, 22, or 24.

43. A method for treating or preventing impotence in a patient, comprising administering to a patient in need of such treatment or prevention a therapeutically or prophylactically effective amount of a compound of claim 1, 8, 17, 19, 20, 22, or 24.

10 44. A method for treating or preventing a neurodegenerative disease or disorder in a patient, comprising administering to a patient in need of such treatment or prevention a therapeutically or prophylactically effective amount of a compound of claim 1, 8, 17, 19, 20, 22, or 24.

15 45. A method of inhibiting hepatic fatty acid synthesis in a patient, comprising administering to a patient in need thereof a therapeutically or prophylactically effective amount of a compound of claim 1, 8, 17, 19, 20, 22, or 24.

46. A method of inhibiting sterol synthesis in a patient, comprising administering to a patient in need thereof a therapeutically or prophylactically effective amount of a compound of claim 1, 8, 17, 19, 20, 22, or 24.

20 47. A method of treating or preventing metabolic syndrome disorders in a patient, comprising administering to a patient in need of such treatment or prevention a therapeutically or prophylactically effective amount of a compound of claim 1, 8, 17, 19, 20, 22, or 24.

25 48. A method of treating or preventing a disease or disorder that is capable of being treated or prevented by increasing HDL levels, which comprises administering to a patient in need of such treatment or prevention a therapeutically effective amount of a compound of claim 1, 8, 17, 19, 20, 22, or 24.

49. A method of treating or preventing a disease or disorder that is capable of being treated or prevented by lowering LDL levels, which comprises administering to such patient in need of such treatment or prevention a therapeutically effective amount of a compound of claim 1, 8, 17, 19, 20, 22, or 24.

5 50. A pharmaceutical composition comprising a compound of claim 1, 8, 17, 19, 20, 22, 24, or 26 and a pharmaceutically acceptable vehicle, excipient, or diluent which is administered in combination with a statin.